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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/629,972 | 07/30/2003 | Robert W. Hulvey | BP2483 | 9524 |

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| EXAMINER | |
|---|---|
| SORRELL, ERON J | |
| **ART UNIT** | **PAPER NUMBER** |
| 2182 | |

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/629,972 | HULVEY, ROBERT W. | |
| | Examiner | Art Unit | |
| | Eron J. Sorrell | 2182 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,4-7,10-13 and 16-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7,10-13 and 16-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,4-7,10-13,16, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (U.S. Patent No. 6,304,250 hereinafter "Yang") in view of Jamieson et al. (WO 01/77801).

3. Referring claim 1, Yang teaches a wireless interface device that services communications between a wirelessly enabled host and user input device (Figures 1-3). The reference includes a user input device comprising a matrix (see col. 2, line 33; Figure 8; col. 7, line 32);

a wireless interface unit that wirelessly interfaces with the wirelessly enabled host (see col. 7, line 37);

a processing unit operably coupled to the wireless interface unit (see figure 8); an input/output unit operably

coupled to the wireless interface unit and to the processing unit, wherein the input/output unit also operably couples to the user input device (see Figure 8); and

a keyboard scanning circuit (see col. 10, lines 1-7) operably coupled to said input/output device to scan the rows and columns of said user input device, wherein said scanning circuit detects operation of (see col. 10, lines 14-17) associated with said user device by detecting a transition in the voltage level (see col. 11, lines 12-17) of at least one row in said switch matrix from a first state to a second state (see "low level" col. 11, line 13). When a key is struck, a function signal is generated and at the same time a corresponding LED is enabled and turned on (changes in state) (see col. 5, lines 14-16).

Yang fails to teach forcing the row back to a first state thereby decreasing the scanning interval for detecting row transitions, as claimed.

Jamieson teaches, in an analogous system, the above limitation (see lines 23-33 of page 10);

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus of Yang with the above teachings of Jamieson. One of ordinary skill in the art would have been motivated to make such

modification in order to prevent an attacker from implementing a predetermined scan regime as suggested by Jamieson (see lines 28-33 of page 10).

4. Referring to claim 4, Jamieson teaches that upon detection of a transition in the voltage level of said row, the scanning circuit identifies a plurality of columns associated with a plurality of switches and sequentially scans each of the plurality of columns to resolve the ambiguity and thereby identify activation of an unambiguous plurality of switches ().

It would have been obvious to one of ordinary skill in the art to modify the teachings of Yang with the above teachings of Jamieson for the same reasons as mentioned in the rejection of claim 1.

5. Referring to claim 5, Yang teaches an I/O signal upon detection of pressing a key (see col. 11, lines 6-16).

6. Referring to claim 6, the reference teaches an activation signal causing the device to change state (see col. 11, lines 12-17).

7. Referring to claim 7, Yang teaches a method (see col. 13, line 5, including a user input device comprising a matrix (see col. 2, lines 33; Figure 8; col. 7, line 32);

a wireless interface unit that wirelessly interfaces with the wirelessly enabled host (see col. 7, line 37);

a processing unit operably coupled to the wireless interface unit; an input/output unit operably coupled to the wireless interface unit and to the processing unit (see Figure 8), wherein the input/output unit also operably couples to the user input device. The reference teaches a keyboard scanning circuit (see col. 10, lines 1-7) operably coupled to the input/output device to scan the rows and columns of said user input device. The reference applies control signals to the matrix (see col. 2, lines 29-41). The keyboard circuit detects operation of a key (see "key is depressed" col. 10, lines 14-17) associated with said user device by detecting a transition in the voltage level (see col. 11, lines 12-17) of at least one row in said switch matrix from a first state to a second state (see "low level" col. 11, line 13). When a key is struck, a function signal is generated and at the same time a corresponding LED is enabled and turned on (transition in state) (see col. 5, lines 14-16).

Yang fails to teach forcing the row back to a first state thereby decreasing the scanning interval for detecting row transitions, as claimed.

Jamieson teaches, in an analogous system, the above limitation (see lines 23-33 of page 10);

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus of Yang with the above teachings of Jamieson. One of ordinary skill in the art would have been motivated to make such modification in order to prevent an attacker from implementing a predetermined scan regime as suggested by Jamieson (see lines 28-33 of page 10).

8. Referring to claim 10, Jamieson teaches that upon detection of a transition in the voltage level of said row, the scanning circuit identifies a plurality of columns associated with a plurality of switches and sequentially scans each of the plurality of columns to resolve the ambiguity and thereby identify activation of an unambiguous plurality of switches (). It would have been obvious to one of ordinary skill in the art to modify the teachings of Yang with the above teachings of Jamieson for the same reasons as mentioned in the rejection of claim 7.

9. Referring to claim 11, Yang et al. teaches an I/0 signal upon detection of pressing a key (see col. 11, lines 6- 16).

10. Referring to claim 12, the reference teaches a signal causing the device to change state (see col. 11, lines 12- 17).

11. Referring to claim 13, Yang et al. teaches a system (see col. 12, line 38) for communications between a host and a user input device (see Figure 3). The reference includes a wireless interface unit that services communications between a wirelessly enabled host and user input device (Figures 1-3). Yang et al. also teaches power management for controlling the power consumption (see col. 1, lines 23-25; col. 6, lines 4-6) of the system. The reference includes a user input device comprising a matrix (see col. 2, lines 33; Figure 8; col. 7, line 32);

a wireless interface unit that wirelessly interfaces with the wirelessly enabled host (see col. 7, line 37);

a processing unit operably coupled to the wireless interface unit; an input/output unit operably coupled to the wireless interface unit and to the processing unit, wherein the input/output unit also operably couples to the user input device(see Figure 8); and

a keyboard scanning circuit (see col. 10, lines 1-7) operably coupled to said input/output device to scan the rows and columns of said user input device, wherein: said scanning circuit detects operation of a key (see ("key is depressed" col. 10, lines 14-17) associated with said user device by detecting a in the voltage level (see col. 11, lines 12-17) of at least one row in said switch matrix from a first state to a second state (see "low level" col. 11, line 13). ) When a key is struck, a function signal is generated and at the same time a corresponding LED is enabled and turned on (changes in state) (see col. 5, lines 14-16).

Yang fails to teach forcing the row back to a first state thereby decreasing the scanning interval for detecting row transitions, as claimed.

Jamieson teaches, in an analogous system, the above limitation (see lines 23-33 of page 10);

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus of Yang with the above teachings of Jamieson. One of ordinary skill in the art would have been motivated to make such modification in order to prevent an attacker from implementing a predetermined scan regime as suggested by Jamieson (see lines 28-33 of page 10).

12. Referring to claim 16, Jamieson teaches that upon detection of a transition in the voltage level of said row, the scanning circuit identifies a plurality of columns associated with a plurality of switches and sequentially scans each of the plurality of columns to resolve the ambiguity and thereby identify activation of an unambiguous plurality of switches (). It would have been obvious to one of ordinary skill in the art to modify the teachings of Yang with the above teachings of Jamieson for the same reasons as mentioned in the rejection of claim 13.

13. Referring to claim 20, Yang et al. teaches an I/O signal upon detection of pressing a key (see col. 11, lines 6-16).

14. The indicated allowability of claims 17-19 and 21 is withdrawn in view of the newly discovered reference(s) to Teshima et al. (U.S. Patent No. 6,760,851) and Arrigo et al. (U.S. Patent No. 6,781,570). Rejections based on the newly cited reference(s) follow.

15. Claims 17,18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Jamieson as applied to

claims 1,7, and 13 above and further in view of Teshima et al. (U.S. Patent No. 6,760,851).

16. Referring to claim 17, the combination of Yang and Jamieson fails to teach the power management unit powers down the wireless interface unit and the processing unit after at least one inactivity period during which the user input device is inactive with respect to the I/O unit.

Teshima teaches, in an analogous system, the above limitation (see lines 41-53 of column 1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Yang and Jamieson with the above teachings of Teshima in order to conserve power as suggested by Teshima (see lines 41-53 of column 1).

17. Referring to claim 18, Teshima teaches the power management unit controls power consumption of the system by:

powering down the wireless interface unit and the processing unit during reduced power operations; and based up notification received from the I/O unit indicating activity by the user input device, powering up the wireless interface unit and the processing unit (see lines 41-53 of column 1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Yang and Jamieson with the above teachings of Teshima for the same reasons as set forth in the rejection of claim 17.

18. Referring to claims 21, Teshima teaches the I/O activation signal causes the system to transition from a low power state to a busy state (see lines 54-65 of column 1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Yang and Jamieson with the above teachings of Teshima for the same reasons as set forth in the rejection of claim 17.

19. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Jamieson and further in view Teshima as applied to claim 17 above and further in view of Arrigo et al. (U.S. Patent No. 6,781,570 hereinafter Arrigo).

20. Referring to claim 19, the combination of Yang, Jamieson, and Teshima fails to teach entering one of a plurality of power consumption operating states, comprising:

busy mode in which all components of the wireless interface device and powered and operational;

idle mode in which the wireless interface until performs first power conserving options;

suspend mode in which the wireless interface unit performs second power conserving options; and

power down mode in which the wireless interface unit and the processing unit ate powered down.

Arrigo teaches, in an analogous system, a wireless device comprising a plurality of power consumption operating states (see figure 2 and lines 46-54 of column 3 and lines 9-24 of column 11).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Yang, Jamieson and Teshima with the above teachings of Arrigo in order to prevent premature depletion of power resources as suggested by Arrigo (see abstract).

*Response to Arguments*

21. Applicant's arguments with respect to claims 1,7, and 13 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J. Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS
May 10, 2006

KIM HUYNH
SUPERVISORY PATENT EXAMINER
5/12/06